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EXAMINER
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NOTE, JANIS L

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/674,358

Applicant(s)

SUGIYAMA ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 10/1/03; 12/30/03; 4/9/04; 9/23/04; 10/29/04; 12/8/04; 1/10/05; 2/24/05; 11/21/05; 12/16/05

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1. The examiner acknowledges the amendments to claims 1, 2, 4, 5, 8, 14, and 15, and the addition of claims 16 and 17 set forth in the amendment filed on Dec. 19, 2005. Claims 1-17 are pending.

The "Amendment to the specification" section of the amendment filed on Sep. 8, 2005, has been entered.

2. The "Amendment to the specification" sections and the "Amendment to the claims" sections filed in the amendment on Feb. 24, 2005, and in the amendment filed on Jun. 8, 2005, did not comply with 37 CFR 1.121 for the reasons discussed in the Notices of non-compliant amendment mailed on May 25, 2005, and on Aug. 19, 2005, respectively. The "Amendment to the claims" section filed in the amendment on Sep. 8, 2005, did not comply with 37 CFR 1.121 for the reasons discussed in the Notice of non-compliant amendment mailed on Nov. 29, 2005. Accordingly, those "Amendment of the specification" sections and "Amendment to the claims" sections have not been entered.

3. The examiner has considered only the material submitted by applicants, i.e., copies of the originally filed claims, abstract, and figures, which were provided by applicants on Oct. 29, 2004, of those US applications, which are listed in the

"List of related cases" in the Information Disclosure Statements (IDS) filed on Oct. 1, 2003, and on Dec. 30, 2003.

The US patents listed on the "List of related cases" filed in the IDS on Oct. 1, 2003, have been crossed-out by the examiner because the US patents are already listed on the PTO-form 1449 filed on Oct. 1, 2003.

The examiner has considered the US applications listed on the "List of related cases" in the IDS's filed on Oct. 29, 2004, Dec. 8, 2004, Jan. 4, 2004, Feb. 24, 2005, Nov. 21, 2005, and Dec. 16, 2005.

4. The US applications listed in the "List of related cases" in the information disclosure statements filed on Sep. 9, 2004, and on Sep. 23, 2004, do not fully comply with the requirements of 37 CFR 1.98 because there are no copies of those portions of the U.S. applications which caused them to be listed present in the instant application.

Contrary to applicants' statements, the waiver of the copy requirement in 37 CFR 1.98 for cited pending U.S. patent applications was published in the Official Gazette on Oct. 19, 2004, after the filing dates of IDS's, Sep. 9, 2004, and Sep. 23, 2004. See 1287 Off. Gaz. Pat. Office 163 (Oct. 19, 2004). The waiver was not retroactive.

The copending US application 10/674,358 listed on the "List of related cases" in the IDS filed on Dec. 30, 2003, has been crossed-out by the examiner because applicants did not provide copies on Oct. 29, 2004, of those portions of the copending U.S. application, which caused it to be listed. The office action mailed on Sep. 29, 2004, paragraph 1, requested copies of said portions.

Applicants are advised that the date of any re-submission of any item of information contained in the information disclosure statements filed on Dec. 30, 2003, Sep. 9, 2004, and Sep. 24, 2004, or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

5. The objection to the drawings set forth in the office action mailed on Sep. 29, 2004, paragraph 2, has been withdrawn in response to the amended paragraphs beginning at page 6, last line, and page 42, last line, of the specification, set forth in the amendment filed on Sep. 8, 2005.

The objection to the specification set forth in the office action mailed on Sep. 29, 2004, paragraph 4, has been withdrawn

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in response to the new paragraph inserted at page 43, after the last line, of the specification, set forth in the amendment filed on Sep. 8, 2005.

The rejection of claim 15 under 35 U.S.C. 102(e) over US 6,549,733 B2 (Matsuguma), set forth set forth in the office action mailed on Sep. 29, 2004, paragraph 9, has been withdrawn in response to the amendment to claim 15 set forth in the amendment filed on Dec. 19, 2005. That amendment added the limitation that the process cartridge comprises an image developer comprising the toner recited in claim 1. Matsuguma does not disclose a process cartridge comprising the toner of claim 1.

The rejection of claim 14 under 35 U.S.C. 102(e) over Matsuguma, set forth set forth in the office action mailed on Sep. 29, 2004, paragraph 10, has been withdrawn in response to the amendment to claim 14 set forth in the amendment filed on Dec. 19, 2005. That amendment to claim 14 added the limitation that the image developer comprises the toner recited in claim 1. Matsuguma does not disclose an image forming apparatus comprising the toner recited in claim 1.

6. The disclosure is objected to because of the following informalities:

The use of trademarks, e.g., Henschel mixer [sic: HENSCHERL MIXER] in the amended paragraph beginning at page 46, line 26, of the specification, set forth in the amendment filed on Sep. 8, 2005, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

Applicants' arguments filed on Feb. 24, 2005, have been fully considered but they are not persuasive.

Applicants assert that the amendments to the specification overcome the objection.

However, for the reasons discussed in the objection, the amendments to the specification filed on Sep. 8, 2005, did not capitalize all the trademarks disclosed in the specification. Accordingly, the objection stands.

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7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is indefinite in the phrase "a weight ratio (i/ii) between the modified polyester resin (i) and unmodified polyester resin (ii) is from 5/95 to 25/75" (emphasis added) for lack of unambiguous antecedent basis. Claim 1, from which claim 5 depends, recites a "urea-modified polyester resin" and a "modified polyester resin capable of being the urea-modified polyester" where the modified polyester resin is reacted with other components to form the urea-modified polyester resin. In view of the plain language of claim 5, the term "the modified polyester resin" should refer to the modified polyester resin used to form the urea-modified polyester resin. However, the originally filed specification at page 15, lines 1-5, discloses that the weight ratio of the urea-modified polyester resin to the unmodified polyester resin is from 5/95 to 25/75. Thus, it



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is not clear to what the term "modified polyester resin" in claim 5 refers, e.g., the urea-modified polyester resin or the modified polyester resin that is used to form the urea-modified polyester.

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. In the event that the term "the modified polyester resin" refers to the "modified polyester resin capable of being the urea-modified polyester resin" recited in instant claim 1, claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 5 recites that the weight ratio of the modified polyester resin to the unmodified polyester resin is from 5/95

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to 25/75. Claim 1, from which claim 5 depends, recites that the modified polyester resin is used to form the urea-modified polyester resin.

The originally filed specification does not provide an adequate written description of the weight ratio recited in instant claim 5. The originally filed specification at page 15, lines 1-5, discloses that the weight ratio of the urea-modified polyester resin to the unmodified polyester resin is from 5/95 to 25/75, not the weight ratio of the modified polyester resin that is used to form the urea-modified polyester to the unmodified polyester resin recited in instant claim 5.

11. Claim 5 is objected to because of the following informalities:

The phrase "toner compositions further comprises . . ." because the noun/verb number mismatch.

Appropriate correction is required.

12. In the interest of compact prosecution, the examiner has interpreted the term "the modified polyester resin" in claim 5 as referring to the urea-modified polyester resin recited in instant claim 1. Antecedent basis for the examiner's interpretation is found at page 15, lines 1-5, of the originally

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filed specification. Rejections based on this interpretation are set forth infra.

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. US 2003/0104297 A1 (Matsuda) was published on Jun. 5, 2003, and has an effective filing date of May 31, 2002. The inventive entity of Matsuda is not the same as the instant application. Accordingly, Matsuda qualifies as prior art under 35 U.S.C. 102(a) and under 35 U.S.C. 102(e).

15. Claims 1, 2, 8-14, and 16 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Matsuda, as evidenced by US 6,194,118 B1 (Miyamoto).

Claims 1, 2, 8-14, and 16 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Matsuda, as evidenced by Miyamoto.

Matsuda discloses a developer comprising a carrier and a toner comprising a binder resin comprising a urea-modified polyester resin and an unmodified polyester resin - low molecular weight polyester 1, a colorant, and carnauba wax. See

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toner 13 in paragraphs 0125-0150, and example 13 in paragraph 0165. The toner has a number average particle size ( $D_n$ ) of 5.52  $\mu\text{m}$  and a volume average particle size ( $D_v$ ) of 6.03  $\mu\text{m}$ , a ratio of  $D_v/D_n$  of 1.09, and an average circularity of 0.97. See paragraph 0150 and Table 2, toner 13. The  $D_n$ ,  $D_v$ , and ratio  $D_v/D_n$  are within the ranges recited in instant claim 8. The circularity of 0.97 is within the range of 0.94 to 1.00 recited in instant claim 9.

The toner is obtained by: (1) preparing a master batch comprising the colorant and a polyester resin; (2) preparing material solution 1 comprising the carnauba wax and the low molecular weight polyester 1; (3) forming a pigment-wax dispersion by mixing the master batch of step (1), the material solution 1, and additional low molecular weight polyester 1; (4) mixing the pigment-wax dispersion of step (3), a prepolymer comprising isocyanate groups that is capable of forming a urea-modified polyester, and ketimine compound 1 as the crosslinker and/or elongation agent; (5) dispersing the mixture of step (4) in an aqueous medium comprising resin particles having an average particle size of 0.1  $\mu\text{m}$  (i.e., 100 nm), while reacting ketimine compound 1 with the prepolymer to form toner particles; and (6) washing the toner particles of step (5). The average particle size of the resin particles is within the range

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of 5 to 500 nm recited in instant claim 10. The amount of wax is 5.5 wt% based on the amount of the colorant. The amounts of the wax and colorant were determined from the information disclosed in toner 13. The amount of 5.5 wt% is within the range of 1 to 30 wt% based on the total weight of colorant recited in instant claim 2.

Matsuda further discloses an image forming apparatus comprising a photoreceptor **1**, a charger **2**, an exposure means **3**, a developing means **4**, a transfer means **5**, and a fixing means **10**. See Fig. 1 and paragraphs 0086-0088. The developing means **4** comprises a tank **40** which contains the developer described above. Paragraphs 0089 and 0165.

Instant claims 1, 2, 8-14, and 16 are written in product-by-process format. The method disclosed by Matsuda meets the process steps recited in the instant claims, but for the master batch comprising a pigment dispersant. However, as discussed above, Matsuda discloses that its toner comprises carnauba wax. It is well-known in the art that waxes can serve as pigment dispersants. Miyamoto, col. 8, lines 56-67. Thus, the toner disclosed by Matsuda meets the compositional limitations recited in the instant claims. Because Matsuda's toner meets the compositional limitations recited in the instant claims, it appears that the toner disclosed by Matsuda is the same or

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substantially the same as the toner made by the process recited in the instant claims. The burden is on applicants to prove otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

Applicants' arguments filed on Feb. 24, 2005, did not address the rejections over Matsuda. Accordingly, the rejections stand.

16. Claims 1-13, 16, and 17 are rejected under 35 U.S.C. 103(a) as unpatentable over WO 02/056116 (Emoto), as evidenced by US 2004/0053155 A1 (US'155), combined with US 6,037,090 (Tanaka). The US published application (US'155), filed under 35 U.S.C. 371, is the national stage of the WO application of Emoto, and therefore is presumed to have been an accurate English-language translation of the WO application of Emoto. See US'155 for cites.

Emoto discloses a toner comprising a binder resin comprising a urea-modified polyester resin and an unmodified polyester resin, copper phthalocyanine blue pigment, and rice wax. US'155, paragraph 0015, and example 1 at paragraphs 0118 to 0129. The toner has a number average particle size (Dn) of 4.8  $\mu\text{m}$  and a volume average particle size (Dv) of 5.5  $\mu\text{m}$ , a ratio of Dv/Dn of 1.15, and an average circularity of 0.94.

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US'155, Table 2, example 1. The Dn, Dv, and ratio Dv/Dn are within the ranges recited in instant claim 8. The circularity of 0.94 is within the range of 0.94 to 1.00 recited in instant claim 9. The weight ratio of the urea-modified polyester to unmodified polyester resin is 0.26, which is within the range of 5/95 to 25/75 (i.e., 0.053 to 0.33) recited in instant claim 5. The weight ratio was determined from the information disclosed in example 1. The dispersed pigment in the toner has a number average particle size of 0.4  $\mu\text{m}$ , and comprises 3.5 % by number of particles having a number average particle size of 0.7  $\mu\text{m}$  or more. The average particle size and particle size distribution of the colorant meet the colorant limitations recited in instant claim 4. Emoto discloses that the above toner may be used in a two-component developer comprising a carrier. US'155, paragraph 0116. Emoto discloses a commercially available copier comprising the toner described above. US'155, paragraph 0165. Thus, Emoto discloses a container comprising the toner, as recited in instant claim 13. Emoto discloses an image forming method comprising the steps of charging a photoconductor, exposing the photoconductor to light to form an electrostatic latent image, developing the latent image with a developer, transferring the toner image to a receiving member, e.g., paper, and fixing the toner image to the receiving member. US'155,

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paragraphs 0002 and 0165.

According to Emoto, the toner provides high quality images excellent in transparency and chroma (brightness, gloss), and has excellent powder fluidity, anti-offset properties, charge stability, and transferability. US'155, paragraph 0012, and Table 2, example 1.

The toner binder resin has a glass transition temperature (Tg) of 55°C, which is within the range of 40 to 70°C recited in instant claim 7. US'155, Table 1. Emoto does not disclose that its toner has a Tg in the range of 40 to 70°C as recited in instant claim 7. However, because the Emoto toner in example 1 comprises 84 wt% of the binder resin and the binder resin has a Tg of 55°C, it is reasonable to presume that the toner has a Tg within the range recited in instant claim 7. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

The Emoto toner in example 1 is obtained by: (1) preparing an oil phase solution by dissolving a prepolymer comprising isocyanate groups that is capable of forming a urea-modified polyester and the un-modified polyester resin in a solvent, dispersing the colorant, and dispersing or dissolving the rice wax; (2) "pulverizing" the oil phase solution of step (1); (3) dispersing the pulverized oil phase in an aqueous solution



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comprising a surfactant and inorganic fine particles; (4) adding ketimine compound 1 as the crosslinker and elongation agent to the dispersion of step (3) and reacting ketimine compound 1 with the prepolymer to form the urea-modified polyester; (5) removing the solvent from the mixture of step (4); and (6) washing the mixture of step (5) to obtain toner particles. See US'155, example 1.

Emoto does not exemplify the use of an aqueous solution comprising resin fine particles as recited in instant claim 1. However, Emoto teaches that the aqueous solution may comprise, as a dispersing agent, polymer fine particles which are insoluble or hardly soluble in water. US'155, paragraph 0102. According to Emoto, the use of polymer fine particles provides toner particles having a sharp particle size distribution. US'155, paragraph 0095 and 0103. Emoto teaches that the volume average particle size of the polymer fine particles is controlled to obtain a toner having a desired particle size. According to Emoto, when a toner having a volume average particle size of 5  $\mu\text{m}$  is desired, the volume average particle size of the polymer fine particles ranges from 0.0025 to 1.5  $\mu\text{m}$ , preferably in the range of 0.005 to 1.0  $\mu\text{m}$  (i.e., 5 to 1000 nm). US'155, paragraph 0104. As discussed above, the volume average particle size of the toner in example 1 of Emoto is 5.5  $\mu\text{m}$ . The

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range of 5 to 1000 nm overlaps the range of 5 to 500 nm recited in instant claim 10. The prior art recognizes that the volume average particle size of the polymer fine particles is a result-effective variable, variation of which is presumably within the skill of the ordinary worker in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Emoto, to use an aqueous solution comprising, as a dispersing agent, polymer fine particles, as taught by Emoto, where the polymer fine particles have a volume average particle size that is within the particle size range recited in instant claim 10, as the aqueous dispersion solution in the method disclosed in example 1 of Emoto. That person would have had a reasonable expectation of successfully obtaining a toner having the desired volume average particle size of 5.5  $\mu\text{m}$ , ratio of  $D_v/D_n$  of 1.15, and the properties disclosed by Emoto.

Emoto does not disclose the use of a pigment dispersant or a pigment dispersion auxiliary agent as recited in instant claims 1 and 17, and claim 3, respectively.

Tanaka teaches forming a pigment dispersion solution by mixing 20 parts by weight of a pigment, 4 parts by weight of a dispersant "polyester amide amine salt" having a particular acid value and amine value, and 1 part by weight of a pigment

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dispersant SOLSPERSE 5000 in 75 parts by weight of the solvent ethyl acetate; and dissolving or dispersing the mixture.

Col. 12, lines 28-38. The "polyester amide amine salt" amount of 20 wt% based on the weight of the pigment is within the range of 1 to 30 wt% based on the weight of the colorant recited in instant claim 2. Tanaka teaches that the resulting pigment dispersion solution may be used in a "so-called" dissolution suspension process for making a toner comprising the steps of: dissolving or dispersing into an organic solvent the binder resin and the pigment dispersion solution to prepare an oily phase, and dispersing the oily phase in an aqueous solution to form toner particles. Col. 3, line 65, to col. 4, line 9, and example 1 at col. 12. The steps in the dissolution suspension process disclosed by Tanaka are similar to steps disclosed in the method of Emoto. According to Tanaka, the use of the dispersant polymer having said particular acid value improves the dispersibility and dispersion stability of the pigment. Col. 3, lines 30-35. The color developability of the toner and light transmittance through OHP (overhead projection) transparencies are said to be improved. The pigment is said to be stably dispersed in the toner for a long time. Col. 4, lines 51-58. Tanaka further discloses that the fine particles of the pigment are uniformly dispersed in the toner particles

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and the amount of the pigment appearing on the surface of the toner particles is reduced "because of the difference in affinity between the colorant and the oil phase components, and between the colorant and the aqueous solution." Col. 4, lines 59-67.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Tanaka, to use the pigment dispersion solution as taught by Tanaka, comprising the dispersant "polyester amide amine salt" in the amount of 20 wt% based on the amount of the pigment, the pigment dispersant SOLSPERSE, and the copper blue phthalocyanine pigment in the step of forming the oil phase in the method of making a toner rendered obvious over the teachings in Emoto. That person would have had a reasonable expectation of successfully obtaining a toner and an image forming method using said toner that provide images with improved color developability and light transmittance through OHP transparencies, wherein the pigment is stably dispersed in the toner for a long time.

Instant claims 1-13, 16, and 17 are written in product-by-process format. The combined teachings of Emoto and Tanaka do not make a toner by the process recited in the instant claims. However, as discussed above, the toner rendered obvious over the combined teachings of Emoto and Tanaka meets the compositional

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limitations recited in the instant claims. Thus, it appears that the toner is the same or substantially the same as the toners made by the process recited in the instant claims. The burden is on applicants to prove otherwise. Marosi, supra; Thorpe, supra; MPEP 2113.

17. Claims 1, 2, 4-13, and 16 are rejected under 35 U.S.C. 103(a) as unpatentable over Emoto as evidenced by US'155, combined with Japanese Patent 11-237758 (JP'758). See US'155 for Emoto cites and the USPTO English-language translation of JP'758 for cites.

Emoto discloses a toner comprising a binder resin comprising a urea-modified polyester resin and an unmodified polyester resin, a pigment, and carnauba wax. US'155, paragraph 0015, and example 2 at paragraphs 0131 to 0137. The toner has a number average particle size ( $D_n$ ) of 6.2  $\mu\text{m}$  and a volume average particle size ( $D_v$ ) of 6.8  $\mu\text{m}$ , a ratio of  $D_v/D_n$  of 1.1, and an average circularity of 0.95. US'155, Table 2, example 2. The  $D_n$ ,  $D_v$ , and ratio  $D_v/D_n$  are within the ranges recited in instant claim 8. The circularity of 0.94 is within the range of 0.94 to 1.00 recited in instant claim 9. The weight ratio of the urea-modified polyester to unmodified polyester resin is 0.31, which is within the range of 5/95 to

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25/75 (i.e., 0.053 to 0.33) recited in instant claim 5. The weight ratio was determined from the information disclosed in example 2. The dispersed pigment in the toner has a number average particle size of 0.5  $\mu\text{m}$ , and comprises 1.0 % by number of particles having a number average particle size of 0.7  $\mu\text{m}$  or more. The average particle size and particle size distribution of the colorant meet the colorant limitations recited in instant claim 4. Emoto discloses that the above toner may be used in a two-component developer comprising a carrier. US'155, paragraph 0116. Emoto discloses a commercially available copier comprising the toner described above. US'155, paragraph 0165. Thus, Emoto discloses a container comprising the toner, as recited in instant claim 13. Emoto discloses an image forming method comprising the steps of charging a photoconductor, exposing the photoconductor to light to form an electrostatic latent image, developing the latent image with a developer, transferring the toner image to a receiving member, e.g., paper, and fixing the toner image to the receiving member. US'155, paragraphs 0002 and 0165. According to Emoto, the toner provides high quality images excellent in transparency and chroma (brightness, gloss), and has excellent powder fluidity, anti-offset properties, charge stability, and transferability. US'155, paragraph 0012, and Table 2, example 1.

The toner binder resin has a glass transition temperature (T<sub>g</sub>) of 60°C, which is within the range of 40 to 70°C recited in instant claim 7. US'155, Table 1. Emoto does not disclose that its toner has a T<sub>g</sub> in the range of 40 to 70°C as recited in instant claim 7. However, because the Emoto toner in example 2 comprises 76 wt% of the binder resin and the binder resin has a T<sub>g</sub> of 60°C, it is reasonable to presume that the toner has a T<sub>g</sub> within the range recited in instant claim 7. The burden is on applicants to prove otherwise. Fitzgerald, supra.

The Emoto toner in example 2 is obtained by: (1) preparing a colorant master batch by kneading a composition comprising a water-containing pigment cake and a polyester resin; (2) forming an oil phase solution by dissolving a prepolymer comprising isocyanate groups that is capable of forming a urea-modified polyester and the un-modified polyester resin in a solvent, dispersing the colorant master batch of step (1), and dispersing or dissolving the carnauba wax; (3) "pulverizing" the oil phase solution of step (2); (4) dispersing the pulverized oil phase in an aqueous solution comprising a surfactant and inorganic fine particles; (5) adding ketimine compound 1 as the crosslinker and elongation agent to the dispersion of step (4) and reacting ketimine compound 1 with the prepolymer to form the urea-modified polyester; (6) removing the solvent from the mixture of

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step (5); and (7) washing the mixture of step (6) to obtain toner particles. See US'155, example 2.

Emoto does not exemplify the use of an aqueous solution comprising resin fine particles as recited in instant claim 1. However, Emoto teaches that the aqueous solution may comprise, as a dispersing agent, polymer fine particles which are insoluble or hardly soluble in water. The discussion of the polymer fine particles in paragraph 16 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Emoto, to use an aqueous solution comprising, as a dispersing agent, polymer fine particles, as taught by Emoto, where the polymer fine particles have a volume average particle size that is within the particle size range recited in instant claim 10, as the aqueous dispersion solution in the method disclosed in example 2 of Emoto. That person would have had a reasonable expectation of successfully obtaining a toner having the desired volume average particle size of 6.8  $\mu\text{m}$ , ratio of  $D_v/D_n$  of 1.1, and the properties disclosed by Emoto.

Emoto does not disclose the use of a pigment dispersant as recited in instant claim 1.



JP'758 teaches dissolving 28 parts by weight of an organic pigment and 2 parts by weight of the pigment dispersant compound (a) shown in Table 1 in sulfuric acid, adding the acid solution into water to convert the pigment and the dispersant into minute precipitates, and repeating the filtration and rinsing with water to form an aqueous paste having a solid content of 30.0 wt%. The aqueous paste is further processed in a flushing method with a resin to form a resin coated pigment, i.e., a color master batch. USPTO translation, Table 1 at page 14 and chemical formula (A) at page 15, and paragraphs 0043-0044. The amount of pigment dispersant compound (a) is 7 wt% based on the amount of the pigment. JP'758 further teaches that pigment dispersant compound (a) can be used in an amount of 0.01 to 30 parts by weight per 100 parts by weight of the pigment. Translation, paragraph 0031. The range of 0.01 to 30 parts by weight per 100 parts by weight of the pigment overlaps the range of 1 to 30 wt% based on the amount of colorant recited in instant claim 2. According to JP'758, when the resultant resin coated pigment is used as the colorant in a toner, the resulting toner provides images with sufficient color reproduction, sharpness, color expression, and transparency. The pigment in the toner is observed to have

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"good distribution with no agglutination." Translation, paragraphs 0012 and 0059.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'758, to use the aqueous pigment paste taught by JP'758 as the water-containing pigment cake in the Emoto step of forming the colorant master batch by kneading the pigment cake, which comprises the JP'758 pigment dispersant, with the polyester resin in the method of making a toner rendered obvious over the teachings in Emoto. That person would have had a reasonable expectation of successfully obtaining a toner and an image forming method using said toner that provide sharp color images with sufficient color reproduction and transparency.

18. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,430,526 (Ohkubo) combined with Emoto, as evidenced by US'155, and Tanaka. See US'155 for cites.

Ohkubo discloses an electrophotographic image forming apparatus comprising all the components recited in instant claim 14, but for the particular toner. Fig. 1 and col. 2, line 56, to col. 3, line 57. The apparatus shown in Fig. 1 comprises an electrophotographic photosensitive drum **3**, a

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contact charging member **4**, an exposure unit that comprises a laser beam **L**, a developing unit **5**, a transfer unit **7**, and a fixing unit **17**. Ohkubo also discloses a process cartridge that comprises all the components recited in instant claim 15, but for the particular toner. Fig. 2 and col. 3, line 65, to col. 4, line 8. The process cartridge shown in Fig. 2 comprises the photosensitive drum **3**, a charging roller **4**, a developing device **5**, and cleaning unit **8**. Ohkubo teaches that the process cartridge is attachably mounted or detachably mountable as a unit relative to the image forming apparatus. Col. 3, lines 63-65.

Ohkubo does not exemplify the particular toner recited in the instant claims. However, Ohkubo does not limit the type of toner used.

Emoto, as evidenced by US'155, combined with Tanaka, renders obvious a toner as described in paragraph 16 above, which is incorporated herein by reference. For the reasons discussed in paragraph 16 above, that toner meets the compositional limitations recited in instant claims 14 and 15. As discussed in paragraph 16, Emoto teaches that its toner provides high quality images excellent in transparency and chroma (brightness, gloss), and has excellent powder fluidity, anti-offset properties, charge stability, and transferability.

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As discussed in paragraph 16 above, Tanaka teaches the benefits of using its dispersant polymer having said particular acid value in forming a toner pigment dispersion, for example, to improve the dispersibility and dispersion stability of the pigment, such that the color developability of the toner and light transmittance through OHP (overhead projection) transparencies are said to be improved.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in Emoto and Tanaka, to use the toner rendered obvious over the combined teachings of Emoto, as evidenced by US'155, and Tanaka, as the toner in the image forming apparatus and the process cartridge disclosed by Ohkubo. That person would have had a reasonable expectation of successfully providing an electrophotographic image forming apparatus and a process cartridge that provide high quality images that are excellent in transparency and chroma (brightness, gloss) as taught by Emoto and that also have improved color developability and light transmittance through OHP transparencies as taught by Tanaka.

19. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkubo combined with Emoto, as evidenced

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by US'155, and combined with JP'758. See US'155 for Emoto cites and the USPTO translation for JP'758 cites.

Ohkubo discloses an electrophotographic image forming apparatus and a process cartridge as described in paragraph 18 above, which are incorporated herein by reference. As discussed in paragraph 18 above, the apparatus and process cartridge comprise all the components recited in instant claims 14 and 15, respectively, but for the particular toner.

Ohkubo does not exemplify the particular toner recited in the instant claims. However, Ohkubo does not limit the type of toner used.

Emoto, as evidenced by US'155, combined with JP'758, renders obvious a toner as described in paragraph 17 above, which is incorporated herein by reference. For the reasons discussed in paragraph 17 above, that toner meets the compositional limitations recited in instant claims 14 and 15. As discussed in paragraph 17, Emoto teaches that its toner provides high quality images excellent in transparency and chroma (brightness, gloss), and has excellent powder fluidity, anti-offset properties, charge stability, and transferability. As discussed in paragraph 17 above, JP'758 teaches the benefits of using its aqueous pigment paste as the colorant in a toner,

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for example, to provide sharp images with sufficient color reproduction, color expression, and transparency.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in Emoto and JP'758, to use the toner rendered obvious over the combined teachings of Emoto, as evidenced by US'155, and JP'758, as the toner in the image forming apparatus and the process cartridge disclosed by Ohkubo. That person would have had a reasonable expectation of successfully providing an electrophotographic image forming apparatus and a process cartridge that provide high quality images that are excellent in transparency and chroma (brightness, gloss) as taught by Emoto, and that have sharp color images with sufficient color reproduction and transparency as taught by JP'758.

20. Applicants' arguments filed on Feb. 24, 2005, with respect to the rejections over Emoto in paragraphs 16-19 above have been fully considered but they are not persuasive.

With respect to the rejections in paragraphs 16 and 18 above, applicants assert that neither example 1 in Emoto nor Tanaka teaches or suggests making a master batch comprising a colorant, a resin, and a pigment, as recited in the instant claims.

Applicants' assertion is not persuasive. The recitation of a "colorant master batch" is a product-by-process limitation. The recitation merely recites forming a composition comprising a colorant, a resin, and a pigment dispersant. For the reasons discussed in paragraph 16 above, the combined teachings of Emoto and Tanaka render obvious a toner that meets the compositional limitations recited in the instant claims. Thus, it appears that the toner is the same or substantially the same as the toners made by the process recited in the instant claims. Applicants have not provided any objective evidence showing otherwise. Accordingly, the rejections in paragraphs 16 and 18 stand.

With respect to the rejections in paragraphs 17 and 19, applicants assert that Emoto does not disclose forming a colorant master batch comprising a colorant, a resin, and a pigment dispersion. Applicants assert that JP'758 teaches forming a resin coated pigment using a pigment agent. Applicants assert that JP'758 does not teach forming a colorant master batch or forming a toner by the steps recited in instant claim 1. Applicants assert that JP'758 only provides a part of the process of preparing the toner recited in instant claim 1.

Applicants' assertions are not persuasive. First, as discussed in paragraph 17 above, Emoto in example 2 teaches

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forming a color master batch by kneading a water-containing pigment cake and a polyester resin, and dispersing the resultant color master batch in an oil phase solution that is formed by dissolving a prepolymer comprising isocyanate groups, i.e., the modified polyester capable of forming a urea-modified polyester, and an un-modified polyester resin. Second, as discussed in paragraph 17 above, JP'758 teaches forming an aqueous paste comprising an organic pigment and a particular pigment dispersant. JP'758 further teaches that the aqueous paste can be kneaded with a resin to form a resin coated pigment, i.e., a color master batch. JP'758 teaches the advantages of using the resulting aqueous pigment paste as the colorant in a toner, for example, providing toners that provide sharp images with sufficient color reproduction, color expression, and transparency. Thus, JP'758 provides motivation, reason, and suggestion for a person having ordinary skill in the art to use the JP'758 aqueous pigment paste as the water-containing pigment cake in the Emoto step of forming the colorant master batch in example 2 of Emoto. In other words, the colorant master batch step rendered obvious over the teachings in the prior art forms a colorant master batch by kneading a composition comprising the JP'758 aqueous pigment paste, which comprises a pigment and the JP'758 pigment dispersant, and the polyester resin disclosed by



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Emoto. Said step meets the process step limitations of forming a color master batch recited in instant claims 1 and 16.

Accordingly, for the reasons discussed in paragraph 17, the combined teachings of Emoto and JP'758 render obvious the toner recited in the instant claims. The rejections in paragraphs 17 and 19 stand.

21. This office action was not made final because of the replacement of the Japanese Patent Office machine-assisted translation of JP'758 with the USPTO English-language translation of JP'758 in paragraphs 17 and 18 above.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Mr. Nam Nguyen, can be reached on (571) 272-1342. The central fax phone number is (571) 273-8300.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on

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access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD

Mar. 5, 2006

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